

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



## Scientific and Technical Information Center

[Patent Intranet](#) > [NPL Virtual Library](#) > [Request a Prior Art Search](#)

[Patents Home](#) | [Site Feedback](#)

[NPL Home](#) | [STIC Catalog](#) | [Site Guide](#) | [EIC](#) | [Automation Training/ITRPs](#) | [Contact Us](#) | [STIC Staff](#) | [FAQ](#) | [Firewall Authentication](#)



### Request a Prior Art Search

Search requests relating to **published applications, patent families, and litigation** may be submitted by filling out this form and clicking on "Send."

For all other search requests, fill out the form, print, and submit the printout with any attachments to the STIC facility serving your Technology Center.

**Tech Center:**

TC 1600    TC 1700    TC 2100    TC 2600  
 TC 2800    TC 3600    TC 3700    Other

**Enter your Contact Information below:**

Name:

Employee Number:  Phone:

Art Unit or Office:  Building & Room Number:

**Enter the case serial number (Required):**

If not related to a patent application, please enter NA here.

Class / Subclass(es)

Earliest Priority Filing Date:

**Format preferred for results:**

Paper    Diskette    E-mail

**Provide detailed information on your search topic:**

- In your own words, describe in detail the concepts or subjects you want us to search.
- Include synonyms, keywords, and acronyms. Define terms that have special meanings.
- \*For Chemical Structure Searches Only\*  
Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers
- \*For Sequence Searches Only\*  
Include all pertinent information (parent, child, divisional, or issued patent numbers) along with

the appropriate serial number.

- \*For Foreign Patent Family Searches Only\*  
Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the **abstract, pertinent claims** (not all of the claims), **drawings, or chemical structures** to your EIC or branch library.

**Enter your Search Topic Information below:**

I am looking for any literature on micro acoustic spectrum analyzers. basically, the invention is directed to making acoustic spectrum analyzers smaller by using microfabricated sensors to provide frequency analysis of a sound signal.

**Special Instructions and Other Comments:**

(For fastest service, let us know the best times to contact you, in case the searcher needs further clarification on your search.)

Press ALT + F, then P to print this screen for your own information.

USPTO [Intranet Home](#) | [Index](#) | [Resources](#) | [Contacts](#) | [Internet](#) | [Search](#) | [Web Services](#)

Last Modified: 12/05/2003 15:08:46

```
show files;ds
File 2:INSPEC 1969-2004/Feb W2
      (c) 2004 Institution of Electrical Engineers
File 6:NTIS 1964-2004/Feb W3
      (c) 2004 NTIS, Intl Cpyrgh All Rights Res
File 8:Ei Compendex(R) 1970-2004/Feb W2
      (c) 2004 Elsevier Eng. Info. Inc.
File 15:ABI/Inform(R) 1971-2004/Feb 17
      (c) 2004 ProQuest Info&Learning
File 25:Weldasearch 1966-2002/Aug
      (c) 2004 TWI Ltd
File 34:SciSearch(R) Cited Ref Sci 1990-2004/Feb W2
      (c) 2004 Inst. for Sci Info
File 58:GeoArchive 1974-2004/Aug
      (c) 2004 Geosystems
File 62:SPIN(R) 1975-2004/Dec W4
      (c) 2004 American Insttute of Physics
File 65:Inside Conferences 1993-2004/Feb W3
      (c) 2004 BLDSC all rts. reserv.
File 88:Gale Group Business A.R.T.S. 1976-2004/Feb 19
      (c) 2004 The Gale Group
File 89:GeoRef 1785-2004/Feb B2
      (c) 2004 American Geological Institute
File 95:TEME-Technology & Management 1989-2004/Feb W1
      (c) 2004 FIZ TECHNIK
File 103:Energy SciTec 1974-2004/Feb B1
      (c) 2004 Contains copyrighted material
File 144:Pascal 1973-2004/Feb W2
      (c) 2004 INIST/CNRS
File 420:UnCover 1988-2001/May 31
      (c) 2001 The UnCover Company
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
      (c) 1998 Inst for Sci Info
File 440:Current Contents Search(R) 1990-2004/Feb 19
      (c) 2004 Inst for Sci Info
```

Set	Items	Description
S1	33	(MICROACOUSTIC? OR MICRO()ACOUSTIC?) (7N)ANALY?
S2	28	(MICROACOUSTI? OR MICRO()ACOUSTIC?) (5N)ANALYS?
S3	5	S1 NOT S2
?		

2/7/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

7347977 INSPEC Abstract Number: B2002-09-2575D-015, C2002-09-3260P-016

Title: A frequency addressable ultrasonic microfluidic actuator array

Author(s): Kaajakari, V.; Sathaye, A.; Lal, A.

Author Affiliation: Dept. of Electr. & Comput. Eng., Wisconsin Univ., Madison, WI, USA

Conference Title: TRANSDUCERS '01. EUROSENSORS XV. 11th International Conference on Solid-State Sensors and Actuators. Digest of Technical Papers Part vol.2 p.958-61 vol.2

Editor(s): Obermeier, E.

Publisher: Springer-Verlag, Berlin, Germany

Publication Date: 2001 Country of Publication: Germany 2 vol. 1807 pp.

ISBN: 3 540 42150 5 Material Identity Number: XX-2001-02052

Conference Title: Proceedings of 11th International Conference on Solid State Sensors and Actuators Transducers '01/Eurosensors XV

Conference Date: 10-14 June 2001 Conference Location: Munich, Germany

Language: English Document Type: Conference Paper (PA)

Treatment: Practical (P); Experimental (X)

Abstract: In this paper, a microfluidic ultrasonic multi-actuator paradigm is introduced. Mixing, pumping, and particle capture are achieved by actuating polysilicon center-anchored circular plates and polysilicon sidewall cantilevers at ultrasonic frequencies using a single piezoelectric PZT (Lead Zirconate Titanate oxide) plate. Frequency addressability of acoustic streaming at surface microstructures is demonstrated by driving the bulk structure at the microstructure resonance frequencies. The actuator array is placed inside a microfluidic channel with a Reynold's number of approximately 0.1. Standing and rotating mode shapes of the polysilicon structures have been observed using an optical interferometer in the frequency range of 200 kHz to 10 MHz. Frequency dependent fluid motion was qualitatively deduced and experimentally verified using dimensional \*analysis\* of \*micro\*-\*acoustic\*-streaming. (12 Refs)

Subfile: B C

Copyright 2002, IEE

2/7/2 (Item 2 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6602032 INSPEC Abstract Number: B2000-07-2860C-002

Title: FFT-based \*analysis\* of periodic structures in \*microacoustic\* devices

Author(s): Jakoby, B.; Vellekoop, M.J.

Author Affiliation: Lab. of Electron. Instrum./DIMES, Delft Univ. of Technol., Netherlands

Journal: IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control vol.47, no.3 p.651-6

Publisher: IEEE,

Publication Date: May 2000 Country of Publication: USA

CODEN: ITUCER ISSN: 0885-3010

SICI: 0885-3010(200005)47:3L.651:BAPS;1-F

Material Identity Number: J776-2000-003

U.S. Copyright Clearance Center Code: 0885-3010/2000/\$10.00

Language: English Document Type: Journal Paper (JP)

Treatment: Theoretical (T)

Abstract: Periodic structures utilized as transducer or reflector

elements play an important role in microacoustic wave devices. Such structures can be described using approximate analytical models. However, to obtain the accuracy required for reliable device simulation, numerical methods have to be employed. In this contribution, we present an efficient numerical approach to calculate the dispersion curves associated with microacoustic modes propagating in periodic structures; the method is demonstrated for the case of Love wave modes. The computational efficiency is related to the utilization of the FFT algorithm in a hybrid Method of Moments (MoM)/Mode-Matching analysis. From the obtained dispersion curves, characteristic parameters such as the stopband width can be obtained which can be used in a coupling-of-modes (COM) model of the structure. (14 Refs)

Subfile: B

Copyright 2000, IEE

2/7/3 (Item 3 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

5991984 INSPEC Abstract Number: B9809-2860C-040  
Title: Efficient \*analysis\* of periodic structures in \*microacoustic\* devices  
Author(s): Jakoby, B.; Vellekoop, M.J.  
Author Affiliation: Electron. Instrum. Lab., Delft Univ. of Technol., Netherlands  
Conference Title: 1997 IEEE Ultrasonics Symposium Proceedings. An International Symposium (Cat. No.97CH36118) Part vol.1 p.113-17 vol.1  
Editor(s): Schneider, S.C.; Levy, M.; McAvoy, B.R.  
Publisher: IEEE, New York, NY, USA  
Publication Date: 1997 Country of Publication: USA 2 vol. 1764 pp.  
ISBN: 0 7803 4153 8 Material Identity Number: XX98-00691  
U.S. Copyright Clearance Center Code: 0 7803 4153 8/97/\$10.00  
Conference Title: 1997 IEEE Ultrasonics Symposium Proceedings An International Symposium  
Conference Sponsor: IEEE Ultrasonics, Ferroelectr. & Frequency Control Soc  
Conference Date: 5-8 Oct. 1997 Conference Location: Toronto, Ont., Canada  
Language: English Document Type: Conference Paper (PA)  
Treatment: Theoretical (T)  
Abstract: Periodic structures utilized as transducer or reflector elements play an important role in microacoustic wave devices. Such structures can be described using approximate analytical models. However, to obtain the accuracy required for reliable device simulation, numerical methods have to be employed. In this contribution we present an efficient numerical approach to calculate the dispersion curves associated with microacoustic modes propagating in periodic structures. The computational efficiency is related to the utilization of the Fast Fourier Transform (FFT) algorithm in a hybrid Method of Moments (MoM)/Mode Matching analysis. From the obtained dispersion curves characteristic parameters such as the stopband width can be obtained which can be used in a coupling-of-modes model of the structure. (11 Refs)

Subfile: B

Copyright 1998, IEE

2/7/4 (Item 4 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

01175928 INSPEC Abstract Number: A78032070

Title: Preliminary \*analysis\* of \*microacoustic\* signals associated with rock fracture

Author(s): Blacic, J.D.; Malone, S.D.

Author Affiliation: Geophys. Program, Univ. of Washington, Seattle, WA, USA

Journal: Geophysical Research Letters vol.4, no.10 p.477-80

Publication Date: Oct. 1977 Country of Publication: USA

CODEN: GPRLAJ ISSN: 0094-8276

Language: English Document Type: Journal Paper (JP)

Treatment: Experimental (X)

Abstract: A new experimental rock deformation system utilizing a piston-cylinder apparatus allows recording of microacoustic signals associated with rock failure with great accuracy over a bandwidth of DC-4 MHz. A calibrated response makes possible the measurement of dynamic seismic parameters which may be compared with those predicted by theory. Preliminary analysis of two events generated during brittle shear failure of granite suggests that the strain drop of approximately  $1 \times 10^{-4}$  is similar to that of large earthquakes. A seismic moment of  $10^6$  dyn-cm and corner frequency of 600 kHz are consistent, in a general way, with those expected from theory. (11 Refs)

Subfile: A

2/7/5 (Item 1 from file: 6)

DIALOG(R)File 6:NTIS

(c) 2004 NTIS, Intl Cpyrht All Rights Res. All rts. reserv.

0088442 NTIS Accession Number: AD-612 094/XAB

\*Microacoustic\* System \*Analysis\* by the Measurement of Free-Field Sound Speed

(Interim rept)

Neubauer, W. G. ; Dragonette, L. R.

Naval Research Lab Washington D C

Corp. Source Codes: 888888888

Report No.: NRL-6113

3 Aug 64 2p

Journal Announcement: USGRDR6508

Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703) 605-6000 (other countries); fax at (703) 321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.

NTIS Prices: PC A02

Contract No.: RF001 03 45 5252

An \*analysis\* of the \*microacoustic\* system was undertaken by means of the measurement of free-field sound speed in water. The water was contained in a 10x5x5 ft cypress tank. A pulse was transmitted from a fixed source to a receiver which was positioned at two different distances along a radius of the source. The distance difference of approximately one meter and the travel time over this distance were accurately measured. Soundspeed measurements were taken at 41 temperatures over a range from 16.8 to 23.10C. A 290-degree spherical cap was used as the fixed source. The movable receiver was a disk transducer whose active element radius was 0.16 lamda at the source resonant frequency of approximately 200 kc. Measurements were also obtained by using 0.63-cm radius disks as source and receiver with the same results. The experimental measurements led to the detection of a large error which exists in the remote determination of large distances using a cathetometer mounted horizontally. This error was eliminated and evaluated by moving along an accurately calibrated bar, allowing distance to be measured directly. Subsequently, a new system was designed which will allow the remote determination of distances accurate to within  $\pm 0.001$  cm. It was found that the ambient temperature at a given

depth in the tank remained constant to within =0.01C. for a time sufficient to make the required measurements and that vertical temperature gradients were not present to a significant degree. The free-field value of velocity was determined to be at least 0.2 to 0.6 m/sec lower than confined field values measured by others. (Author)

2/7/6 (Item 1 from file: 8)  
DIALOG(R)File 8:EI Compendex(R)  
(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

03069581 E.I. Monthly No: EI9106072031  
Title: Seepage investigation.  
Author: Nickels, Ken; Grant, Steve; Christensen, Dick  
Corporate Source: EWI Engineering Associates, Madison, WI, USA  
Source: Water/Engineering and Management v 138 n 1 Jan 1991 p 16-17  
Publication Year: 1991  
CODEN: WENMD2 ISSN: 0273-2238  
Language: English  
Document Type: JA; (Journal Article) Treatment: A; (Applications); X;  
(Experimental)

Journal Announcement: 9106  
Abstract: For 16 years the residents along Lake Carroll's shoreline in, Lake Carroll, Ill., have put up with low water levels due to lake leakage. While attempts had been made over the years to pinpoint the source of lake leakage, progress was slow until a recent effort used a combination of detection approaches including water balance modeling, self-potential surveying, \*microacoustic\* detection and dye-tracer \*analysis\*. Each of these techniques, in isolation, has been used in other settings to detect water leaks. In the case of Lake Carroll, however, the combination of techniques to localize the source of exfiltration and confirm results constituted an accurate and cost-effective strategy.

2/7/7 (Item 1 from file: 25)  
DIALOG(R)File 25:Weldasearch  
(c) 2004 TWI Ltd. All rts. reserv.

00076132 040979  
NONDESTRUCTIVE TESTING BY 'ANALYSIS OF ACOUSTIC EMMISIONS'.  
PARRY D L  
REVISTA DE SOLDADURA, VOL 3, NO 1.JAN-MAR 19 73.PP.17-27.8 FIG., 2 TABLES.  
DOCUMENT TYPE: Books and other publications  
LANGUAGE: Spanish RECORD TYPE: Abstract

EQUIPMENT FOR THE DETECTION AND ANALYSIS OF ACOUSTIC EMISSIONS IS BRIEFLY DESCRIBED, AND ITS OPERATION EXPLAINED. IN THIS TYPE OF TEST, USE IS MADE OF \*MICROACOUSTIC\* WAVES GENERATED UNDER STRESS TO \*ANALYSE\* THE PHYSICAL INTEGRITY OF STRUCTURES, OR TO SPOT LEAKDS IN PRESSURISED SYSTEMS. THREE TYPICAL EXAMPLES ARE GIVEN OF EFFECIVE USE OF THIS METHOD FOR NONDESTRUCTIVE TESTING OF A CHEMICAL VESSEL, A HEAT EXCHANGER, AND AN UNDERGROUND PIPELINE. IT MAY BE APPL8ED TO MATERIALS AS DIVERSE AS METALS AND WOOD, AND TO STRUCTURES AS DIFFERENT AS LABORATORY TESTPIECES AND THE PRESSURE SYSTEMS OF LARGE NUCLEAR PLANTS.

2/7/8 (Item 2 from file: 25)  
DIALOG(R)File 25:Weldasearch  
(c) 2004 TWI Ltd. All rts. reserv.

00067825 031246

FIELD EVALUATION OF HEAVY-WALLED PRESSURE VESSELS USING ACCOUSTIC EMISSION ANALYSIS.

WAITE E V; PARRY D L  
MATER. EVAL., JUNE 1971, 29, (6), 117-124.

MATER. EVAL.

PUBLICATION DATE: 19710000 DOCUMENT TYPE: Journal  
LANGUAGE: English RECORD TYPE: Abstract

A PORTABLE ACOUSTIC ANALYSIS SYSTEM WAS DEVELOPED WHICH DETECTS, LOCATES AND \*ANALYSES\* \*MICROACOUSTIC\* ENERGY EMISSIONS ORIGINATING FROM FLAWS OR CRACKS WITHIN A STRESSED STRUCTURE. TH AID IN THE DEVELOPMENT AND EVALUATION OF THE ACOUSTIC SYSTEM. ACOUSTIC-EMISSION DATA WERE OBTAINED AND ON-SITE ANALYSES MADE OF THE INTEGRITY OF SEVERAL LARGE INDUSTRIAL CHEMICAL-REACTOR PRESSURE VESSELS IN CONJUNCTION WITH THE HYDROSTATIC-ACCEPTANCE TESTING OF THE VESSELS. THE SYSTEM WAS SHOWN TO BE CAPABLE OF DETECTING AND LOCATING ACOUSTIC-EMISSION SITES (FLAWS) AS SMALL AS 0.1 IN. (2.54 MM) IN SIZE WITH ACOUSTIC-SIGNAL TRANSMISSION DISTANCE OF UP TO 60 FT (18.28 M) FROM THE EMISSION SITE TO THE DETECTOR IN C STEELS.

2/7/9 (Item 1 from file: 95)  
DIALOG(R)File 95:TEME-Technology & Management  
(c) 2004 FIZ TECHNIK. All rts. reserv.

01416977 20000600166  
Ein Magnitudenmass fuer Schallemissionsanalyse und Mikroakustik  
(A magnitude unit for acoustic \*analysis\* and \*micro\* \*acoustic\*)  
Eisenblaetter, J; Spies, T  
Gesellschaft fuer Materialpruefung und Geophysik, Ober-Moerlen, D.;  
Bundesanstalt fuer Geowissenschaften und Rohstoffe, Hannover, D  
Statusberichte zur Entwicklung und Anwendung der Schallemissionsanalyse.  
Vortraege und Plakatbeitraege. 12. Kolloquium Schallemission, Deutsche Ges.  
fuer Zerstoerungsfreie Pruefung (DGZFP), Jena, D, 23.-24. Mar, 20002000  
Document type: Conference paper Language: German  
Record type: Abstract  
ISBN: 3-931381-31-5

ABSTRACT:

Als Mass fuer die Staerke eines Schallemissionssignals wird im Allgemeinen die Maximalamplitude herangezogen. Die Staerke eines Schallemissionereignisses laesst sich allerdings mit dieser Messgroesse nur dann hinreichend charakterisieren, falls die Quellen der zu vergleichenden Ereignisse vom Aufnehmer aehnlichen Abstand haben. Bei Messungen mit mehreren Aufnehmern, bei denen die Quellen geortet werden, ist deshalb eine auf einen bestimmten Abstand bezogene Messgroesse angebracht. Bei unseren mikroakustischen Messungen in Salzbergwerken wird dieser Bezug auf einen festen Abstand in einer Ausgleichsrechnung hergestellt, wobei als Eingangsgroessen die Maximalamplituden an den Messkanalen und die Abstaende der Schallquelle von den Aufnehmern dienen. Wir gehen hierbei von einer Gesetzmaessigkeit fuer die abstandsabhaengige Schallschwaechung aus, welche geometrische Divergenz und Schwaechung durch Absorption und Streuung beruecksichtigt. Den Funktionswert der Ausgleichskurve bei 50 m bezeichnen wir als Magnitude. Im zweiten Teil dieses Beitrags wird gezeigt, dass bei Einsetzen der (elektrischen) Energie der Signale an Stelle der Maximalamplituden in den selben Rechengang ein Mass fuer die Ereignisenergie resultiert, fuer das - bei Kenntnis der absoluten Empfindlichkeit der Aufnehmer (z.B. aus einer Reziprozitaetskalibrierung) - auch die absolute seismische Energie des Ereignisses angegeben werden kann. Die gefundenen Groessenordnungen der seismischen Energien werden mit bekannten Ergebnissen mikroseismischer Messungen im Steinsalz verglichen.

2/7/10 (Item 1 from file: 144)  
DIALOG(R)File 144:Pascal  
(c) 2004 INIST/CNRS. All rts. reserv.

12529883 PASCAL No.: 96-0204696

Analyse et modelisation des performances de capteurs microacoustiques specifiques adaptees a l'adherence de couches minces sur substrat  
(\*Analysis\* and modelization of specific \*microacoustic\* sensor performances matched to the adhesion of thin films on substrate)

MAUREL Celine; ATTAL J, dir

Universite de Montpellier 2, Montpellier, Francee

Univ.: Universite de Montpellier 2. Montpellier. FRA Degree: Th. doct.

1995-12; 1995 167 p.

Availability: INIST-T 102428; T95MON20199

No. of Refs.: 84 ref.

Document Type: T (Thesis) ; M (Monographic)

Country of Publication: France

Language: French Summary Language: French; English

L'etude a eu pour objectif de developper les applications de la microscopie acoustique a la caracterisation de la tenue mecanique d'une couche mince deposee sur un substrat. Une partie consacree a la modelisation expose les differentes formulations de l'adhesion et permet la determination du reseau de dispersion des vitesses des modes de Lamb pour chaque degré d'adherence. Cette analyse est mise en oeuvre experimentalement sur des plaques d'acier liees a un substrat en verre. La definition de criteres permettant d'évaluer l'efficacite de ces modes est developpee et appliquee a l'étude de leur sensibilite au decollement. L'optimisation des performances du capteur est etudiee par l'intermediaire de la longueur de la ligne a retard. Nous montrons, au niveau theorique et experimental, que ce parametre permet d'améliorer la sensibilite de la signature acoustique aux modes de propagation acoustiques. Au niveau experimental, la caracterisation d'un depot PVD de chrome de 10 microns d'epaisseur sur un substrat en acier est abordee sous deux aspects. D'une part, l'imagerie hautes frequences permet d'observer sa microstructure et de detecter les defauts masques (fissures,). D'autre part, l'analyse de signatures acoustiques  $V(z)$  et de profils  $V(x)$  permet d'effectuer une quantification de la qualite du revetement

?

3/7/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

00297222 INSPEC Abstract Number: A71060113

Title: Field evaluation of heavy-walled pressure vessels using acoustic emission analysis

Author(s): Waite, E.V.; Parry, D.L.

Author Affiliation: Idaho Nuclear Corp., Idaho Falls, ID, USA

Journal: Materials Evaluation vol.29, no.6 p.117-24

Publication Date: June 1971 Country of Publication: USA

CODEN: MAEVAD ISSN: 0025-5327

Language: English Document Type: Journal Paper (JP)

Treatment: Practical (P)

Abstract: A portable acoustic analysis system has been developed by Idaho Nuclear Corporation (INC) which detects, locates and \*analyzes\* \*microacoustic\* energy emissions originating from flaws or cracks within a stressed structure. The system was developed for the US Atomic Energy Commission for potential use as a nondestructive test technique for the safety assessment of pressure retention envelopes of nuclear power reactors. To aid in the development and evaluation of the acoustic system, acoustic emission data were obtained and on-site analyses made of the integrity of several large industrial chemical reactor pressure vessels in conjunction with the hydrostatic acceptance testing of the vessels. The system was shown to be capable of detecting and locating acoustic emission sites (flaws) as small as 0.1 in. (2.54 mm) in size with acoustic signal transmission distance of up to 60 ft (18.28 m) from the emission site to the detector.

Subfile: A

3/7/2 (Item 1 from file: 8)

DIALOG(R)File 8:Ei Compendex(R)

(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

03793278 E.I. No: EIP94011192034

Title: Rigorous modeling of corrugated surfaces in microacoustics

Author: Baghai-Wadji, A.R.; Maradudin, A.A.

Corporate Source: Vienna Univ of Technology, Vienna, Austria

Conference Title: Proceedings of the 47th IEEE Annual International Frequency Control Symposium

Conference Location: Salt Lake City, UT, USA Conference Date: 19930602-19930604

Sponsor: IEEE

E.I. Conference No.: 19580

Source: Proceedings of the Annual Frequency Control Symposium 1993. Publ by IEEE, IEEE Service Center, Piscataway, NJ, USA, (IEEE cat n 93CH3244-1). p 514-522

Publication Year: 1993

CODEN: JOUHEI ISSN: 0161-6404 ISBN: 0-7803-0905-7

Language: English

Document Type: CA; (Conference Article) Treatment: T; (Theoretical)

Journal Announcement: 9403W3

Abstract: In the \*analysis\* and design of crystal oscillators and \*microacoustic\* resonators, an accurate characterization of the wave propagation along periodically loaded surfaces is needed. It is a known fact that the nature of the surface loading can be electrical or mechanical or a combination of both. However, the majority of approaches presented so far consider only the effects of the electrical loading. In this paper will be present a boundary-element-formulation of the massloading effects in

surface acoustic wave oscillators and resonators. The method of analysis is based on the concept of periodic Green's functions and the method of weighted residuals. A numerically calculated dispersion curve associated with a surface transverse wave in a periodic structure will also be presented. (Author abstract) 4 Refs.

3/7/3 (Item 2 from file: 8)  
DIALOG(R)File 8:EI Compendex(R)  
(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

00184735 E.I. Monthly No: EI71X172663  
Title: Field evaluation of heavy- walled pressure vessels using acoustic emission analysis.  
Author: WAITE, E. V.; PARRY, D. L.  
Corporate Source: Idaho Nuclear Corp, Idaho Falls  
Source: Materials Evaluation v 29 n 6 June 1971 p 117-24  
Publication Year: 1971  
CODEN: MAEVA ISSN: 0025-5327  
Language: ENGLISH  
Journal Announcement: 71X1  
Abstract: A portable acoustic analysis system has been developed by Idaho Nuclear Corp (INC) which detects, locates and \*analyzes\* \*microacoustic\* energy emissions originating from flaws or cracks within a stressed structure. System is used as a nondestructive test technique for the safety assessment of pressure retention envelopes of nuclear power reactors. 3 refs.

3/7/4 (Item 1 from file: 65)  
DIALOG(R)File 65:Inside Conferences  
(c) 2004 BLDSC all rts. reserv. All rts. reserv.

02723363 INSIDE CONFERENCE ITEM ID: CN028348207  
Field Theory \*Analysis\* and Experimental Characterization of Wave Propagation in \*Microacoustic\* Structures  
Weigel, R.; Holm, A.; Meier, H.; Roesler, U.  
CONFERENCE: Progress in electromagnetics research-Symposium  
PROGRESS IN ELECTROMAGNETICS RESEARCH SYMPOSIUM, 1997; VOL 1 P: 95  
Hong Kong, City Univ of Hong Kong, 1997  
ISBN: 9624420971  
LANGUAGE: English DOCUMENT TYPE: Conference Extended abstracts  
CONFERENCE SPONSOR: City University Hong Kong Telecommunications Research Centre  
CONFERENCE LOCATION: Hong Kong  
CONFERENCE DATE: Jan 1997 (199701) (199701)  
NOTE:  
See also 4542.4293 vol 11 no 6 1997 for selected papers

3/7/5 (Item 2 from file: 65)  
DIALOG(R)File 65:Inside Conferences  
(c) 2004 BLDSC all rts. reserv. All rts. reserv.

02715761 INSIDE CONFERENCE ITEM ID: CN028272188  
Field Theory \*Analysis\* and Experimental Characterization of Wave Propagation in \*Microacoustic\* Structures  
Weigel, R.; Holm, A.; Meier, H.; Roesler, U.  
CONFERENCE: Progress in electromagnetics research-Symposium  
PROGRESS IN ELECTROMAGNETICS RESEARCH SYMPOSIUM, 1997; VOL 1 P: 95

Hong Kong, City Univ of Hong Kong, 1997

ISBN: 9624420971

LANGUAGE: English DOCUMENT TYPE: Conference Extended abstracts

CONFERENCE SPONSOR: City University Hong Kong Telecommunications  
Research Centre

CONFERENCE LOCATION: Hong Kong

CONFERENCE DATE: Jan 1997 (199701) (199701)

NOTE:

See also 4542.4293 vol 11 no 6 1997 for selected papers

?

/7/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

00297222 INSPEC Abstract Number: A71060113

Title: Field evaluation of heavy-walled pressure vessels using acoustic emission analysis

Author(s): Waite, E.V.; Parry, D.L.

Author Affiliation: Idaho Nuclear Corp., Idaho Falls, ID, USA

Journal: Materials Evaluation vol.29, no.6 p.117-24

Publication Date: June 1971 Country of Publication: USA

CODEN: MAEVAD ISSN: 0025-5327

Language: English Document Type: Journal Paper (JP)

Treatment: Practical (P)

Abstract: A portable acoustic analysis system has been developed by Idaho Nuclear Corporation (INC) which detects, locates and \*analyzes\* \*microacoustic\* energy emissions originating from flaws or cracks within a stressed structure. The system was developed for the US Atomic Energy Commission for potential use as a nondestructive test technique for the safety assessment of pressure retention envelopes of nuclear power reactors. To aid in the development and evaluation of the acoustic system, acoustic emission data were obtained and on-site analyses made of the integrity of several large industrial chemical reactor pressure vessels in conjunction with the hydrostatic acceptance testing of the vessels. The system was shown to be capable of detecting and locating acoustic emission sites (flaws) as small as 0.1 in. (2.54 mm) in size with acoustic signal transmission distance of up to 60 ft (18.28 m) from the emission site to the detector.

Subfile: A

3/7/2 (Item 1 from file: 8)

DIALOG(R)File 8:Ei Compendex(R)

(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

03793278 E.I. No: EIP94011192034

Title: Rigorous modeling of corrugated surfaces in microacoustics

Author: Baghai-Wadji, A.R.; Maradudin, A.A.

Corporate Source: Vienna Univ of Technology, Vienna, Austria

Conference Title: Proceedings of the 47th IEEE Annual International Frequency Control Symposium

Conference Location: Salt Lake City, UT, USA Conference Date: 19930602-19930604

Sponsor: IEEE

E.I. Conference No.: 19580

Source: Proceedings of the Annual Frequency Control Symposium 1993. Publ by IEEE, IEEE Service Center, Piscataway, NJ, USA, (IEEE cat n 93CH3244-1). p 514-522

Publication Year: 1993

CODEN: JOUHEI ISSN: 0161-6404 ISBN: 0-7803-0905-7

Language: English

Document Type: CA; (Conference Article) Treatment: T; (Theoretical)

Journal Announcement: 9403W3

Abstract: In the \*analysis\* and design of crystal oscillators and \*microacoustic\* resonators, an accurate characterization of the wave propagation along periodically loaded surfaces is needed. It is a known fact that the nature of the surface loading can be electrical or mechanical or a combination of both. However, the majority of approaches presented so far consider only the effects of the electrical loading. In this paper will be present a boundary-element-formulation of the massloading effects in surface acoustic wave oscillators and resonators. The method of analysis is

based on the concept of periodic Green's functions and the method of weighted residuals. A numerically calculated dispersion curve associated with a surface transverse wave in a periodic structure will also be presented. (Author abstract) 4 Refs.

3/7/3 (Item 2 from file: 8)  
DIALOG(R)File 8:Ei Compendex(R)  
(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

00184735 E.I. Monthly No: EI71X172663  
Title: Field evaluation of heavy- walled pressure vessels using acoustic emission analysis.

Author: WAITE, E. V.; PARRY, D. L.  
Corporate Source: Idaho Nuclear Corp, Idaho Falls  
Source: Materials Evaluation v 29 n 6 June 1971 p 117-24  
Publication Year: 1971  
CODEN: MAEVA ISSN: 0025-5327  
Language: ENGLISH  
Journal Announcement: 71X1  
Abstract: A portable acoustic analysis system has been developed by Idaho Nuclear Corp (INC) which detects, locates and \*analyzes\* \*microacoustic\* energy emissions originating from flaws or cracks within a stressed structure. System is used as a nondestructive test technique for the safety assessment of pressure retention envelopes of nuclear power reactors. 3 refs.

3/7/4 (Item 1 from file: 65)  
DIALOG(R)File 65:Inside Conferences  
(c) 2004 BLDSC all rts. reserv. All rts. reserv.

02723363 INSIDE CONFERENCE ITEM ID: CN028348207  
Field Theory \*Analysis\* and Experimental Characterization of Wave Propagation in \*Microacoustic\* Structures  
Weigel, R.; Holm, A.; Meier, H.; Roesler, U.  
CONFERENCE: Progress in electromagnetics research-Symposium  
PROGRESS IN ELECTROMAGNETICS RESEARCH SYMPOSIUM, 1997; VOL 1 P: 95  
Hong Kong, City Univ of Hong Kong, 1997  
ISBN: 9624420971  
LANGUAGE: English DOCUMENT TYPE: Conference Extended abstracts  
CONFERENCE SPONSOR: City University Hong Kong Telecommunications Research Centre  
CONFERENCE LOCATION: Hong Kong  
CONFERENCE DATE: Jan 1997 (199701) (199701)  
NOTE:  
See also 4542.4293 vol 11 no 6 1997 for selected papers

3/7/5 (Item 2 from file: 65)  
DIALOG(R)File 65:Inside Conferences  
(c) 2004 BLDSC all rts. reserv. All rts. reserv.

02715761 INSIDE CONFERENCE ITEM ID: CN028272188  
Field Theory \*Analysis\* and Experimental Characterization of Wave Propagation in \*Microacoustic\* Structures  
Weigel, R.; Holm, A.; Meier, H.; Roesler, U.  
CONFERENCE: Progress in electromagnetics research-Symposium  
PROGRESS IN ELECTROMAGNETICS RESEARCH SYMPOSIUM, 1997; VOL 1 P: 95  
Hong Kong, City Univ of Hong Kong, 1997

show files;ds  
File 2:INSPEC 1969-2004/Feb W2  
(c) 2004 Institution of Electrical Engineers

Set	Items	Description
S1	6647	MICROSENSORS?/DE
S2	8	S1 AND SPECTRUM(5N) ANALY?
?		

2/7/1

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

7389888 INSPEC Abstract Number: A2002-21-8280T-012, B2002-11-7230L-006

Title: Development of micro-\*\*spectrum\*\* \*\*analyzing\*\* devices:  
applications to carbon dioxide sensor

Author(s): Hitoshi, H.; Kishi, N.; Iwaoka, H.

Author Affiliation: Yokogawa Electr. Corp., Japan

Journal: Transactions of the Institute of Electrical Engineers of Japan,  
Part E vol.122-E, no.5 p.274-9

Publisher: Inst. Electr. Eng. Japan,

Publication Date: May 2002 Country of Publication: Japan

CODEN: DGREF9 ISSN: 1341-8939

SICI: 1341-8939(200205)122/E:5L.274:DMSA;1-M

Material Identity Number: F143-2002-005

Language: Japanese Document Type: Journal Paper (JP)

Treatment: Applications (A); Experimental (X)

Abstract: We have developed an infrared detector and a micro variable infrared filter for micro-\*\*spectrum\*\* \*\*analyzing\*\* devices. Two infrared detectors and the infrared filter were mounted on an identical package. A micro-\*\*spectrum\*\* \*\*analyzing\*\* device of 1 cm<sup>3</sup> volume as the two wavelength NDIR system for combining these elements with the infrared source was able to measure the concentration of carbon dioxide. (11 Refs)

Subfile: A B

Copyright 2002, IEE

2/7/2

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

7188378 INSPEC Abstract Number: A2002-07-0710C-003, B2002-03-7230M-018,  
C2002-03-7410H-030

Title: Characterizing tuning forks as nanomechanics sensors through thermal noise spectra measured by a personal computer sound card

Author(s): Mariani, T.; Lenci, L.; Petracchi, D.; Ascoli, C.

Author Affiliation: Ist. di Biofisica, CNR, Pisa, Italy

Journal: Measurement Science & Technology vol.13, no.1 p.28-32

Publisher: IOP Publishing,

Publication Date: Jan. 2002 Country of Publication: UK

CODEN: MSTCEP ISSN: 0957-0233

SICI: 0957-0233(200201)13:1L.28:CTFN;1-P

Material Identity Number: N647-2002-001

U.S. Copyright Clearance Center Code: 0957-0233/02/010028+05\$30.00

Document Number: S0957-0233(02)26410-3

Language: English Document Type: Journal Paper (JP)

Treatment: Experimental (X)

Abstract: A minimal and convenient experimental set-up is described, which allows an easy characterization of crystal tuning forks, especially after the modifications introduced to exploit them as sensors in nanomechanics and in force microscopy techniques. The system uses the thermal noise of the crystal as test signal, a simple frequency converter for translating the signal itself into the audio-frequency band, and a PC sound card to acquire it and eventually perform a fast Fourier transform \*\*spectrum\*\* \*\*analysis\*\* on the noise samples. Our results show that the main decrease of the Q-factor of the tuning fork is caused by its acoustical coupling to the environment, while small masses added to either or both prongs only produce minor variations. (15 Refs)

Subfile: A B C

2/7/3

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

7115708 INSPEC Abstract Number: A2002-02-8760B-009, B2002-01-7510H-017

**Title: Micromachined muscle cell analysis chip**

Author(s): Weijie Wang; Li, P.C.H.; Parameswaran, A.M.

Author Affiliation: Dept. of Chem., Simon Fraser Univ., Burnaby, BC, Canada

Journal: Proceedings of the SPIE - The International Society for Optical Engineering Conference Title: Proc. SPIE - Int. Soc. Opt. Eng. (USA) vol.4230 p.100-8

Publisher: SPIE-Int. Soc. Opt. Eng,

Publication Date: 2000 Country of Publication: USA

CODEN: PSISDG ISSN: 0277-786X

SICI: 0277-786X(2000)4230L.100:MMCA;1-6

Material Identity Number: C574-2001-084

U.S. Copyright Clearance Center Code: 0277-786X/00/\$15.00

Conference Title: Micromachining and Microfabrication

Conference Sponsor: SPIE; Nanyang Technol. Univ

Conference Date: 28-30 Nov. 2000 Conference Location: Singapore

Language: English Document Type: Conference Paper (PA); Journal Paper (JP)

Treatment: Applications (A); Practical (P); Experimental (X)

Abstract: Reports the fabrication of a microfluidic biochip integrated with an acoustic wave sensor that can be used to characterize the contraction of single cardiac (heart) muscle cells. The work will lead to rapid analysis of single muscle cells in response to various drugs by determining changes in mass and viscoelastic properties during cell contraction and relaxation. The microfabricated device is a combination of a top cover plate which is a glass substrate containing etched channels and a bottom plate which is an AT-cut quartz crystal with excitation electrodes. The glass plate is micromachined with a network of channels and chambers, which is intended for delivery of fluids, selection and retention of single muscle cells. The bottom plate (quartz crystal) comprises all the patterned electrodes for acoustic wave launching and detection. The quartz plate is operated in the thickness-shear acoustic wave mode. In preliminary tests, myocytes (muscle cells) were introduced into the fluidic channels through a drilled hole. A cardiac muscle cell was monitored optically using a microscope while the cell was stimulated to contract and relax by a high calcium ion concentration (bath solution). Using the impedance mode of a network/\*\*spectrum\*\* \*\*analyzer\*\*, various parameters of the AT-cut quartz crystal, which include resonant frequencies, frequencies at minimum and maximum impedance, and equivalent circuit parameters, were continuously monitored. This paper describes the device fabrication, experimental setup, procedure, and some preliminary results of the impedance analysis. (10

Refs)

Subfile: A B

Copyright 2001, IEE

2/7/4

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6588719 INSPEC Abstract Number: A2000-12-0710C-004, B2000-06-2575D-050

**Title: Analytical modelling for accelerometers with electrically tunable sensitivity**

Author(s): Cretu, E.; Bartek, M.; Wolffenbuttel, R.F.  
Author Affiliation: Dept. of Electr. Eng., Delft Univ. of Technol.,  
Netherlands  
Conference Title: 1999 International Conference on Modeling and  
Simulation of Microsystems p.601-4  
Publisher: Computational Publications, Cambridge, MA, USA  
Publication Date: 1999 Country of Publication: USA xviii+690 pp.  
ISBN: 0 9666135 4 6 Material Identity Number: XX-1999-00128  
Conference Title: Proceedings of International Conference on Modelling  
and Simulation of Microsystems, Semiconductors, Sensors and Actuators  
Conference Sponsor: Integrated Syst. Eng.; IntelliSense Corp.; MEMSCAP  
S.A.; Mentor Graphics Corp.; Microcosm Technol. Inc.; Molecular Simulations  
Inc  
Conference Date: 19-21 April 1999 Conference Location: San Juan,  
Puerto Rico  
Language: English Document Type: Conference Paper (PA)  
Treatment: Practical (P); Theoretical (T)  
Abstract: Results of the analysis and modelling of a pendulum type of  
accelerometer in an electrostatic field are presented. A common-mode  
voltage is used to yield an electrostatic positive feedback that amplifies  
the mechanical sensitivity. The externally applied electrostatic field  
enables the tuning of both sensitivity and spectral selectivity. The  
electromechanical coupling is analyzed both analytically and numerically,  
in terms of electrostatic shear forces and bending momenta. The results are  
used to design and fabricate accelerometers for mechanical \*\*spectrum\*\*  
\*\*analysis\*\*. (2 Refs)  
Subfile: A B  
Copyright 2000, IEE

2/7/5  
DIALOG(R)File 2:INSPEC  
(c) 2004 Institution of Electrical Engineers. All rts. reserv.  
6483566 INSPEC Abstract Number: B2000-03-7230-015  
Title: Wireless integrated network sensors: low power systems on a chip  
Author(s): Asada, G.; Dong, M.; Lin, T.S.; Newberg, F.; Pottie, G.;  
Kaiser, W.J.; Marcy, H.O.  
Author Affiliation: California Univ., Los Angeles, CA, USA  
Conference Title: ESSCIRC '98. Proceedings of the 24th European  
Solid-State Circuits Conference p.9-16  
Editor(s): Huijsing, J.H.; van Roermund, A.H.M.; Grunbacher, H.  
Publisher: Editions Frontieres, Paris, France  
Publication Date: 1998 Country of Publication: France xii+514 pp.  
ISBN: 2 86332 235 4 Material Identity Number: XX-1999-03625  
Conference Title: ESSCIRC '98. Proceedings of the 24th European  
Solid-State Circuits Conference  
Conference Date: 22-24 Sept. 1998 Conference Location: The Hague,  
Netherlands  
Language: English Document Type: Conference Paper (PA)  
Treatment: Practical (P)  
Abstract: Wireless integrated network sensors (WINS) now provide a new  
monitoring and control capability for transportation, manufacturing, health  
care, environmental monitoring, and safety and security. WINS combine  
sensing, signal processing, decision capability, and wireless networking  
capability in a compact, low power system. WINS systems combine microsensor  
technology with low power sensor interface, signal processing, and RF  
communication circuits. The need for low cost presents engineering  
challenges for implementation of these systems in conventional digital CMOS  
technology. This paper describes micropower data converter, digital signal  
processing systems, and weak inversion CMOS RF circuits. The digital signal

processing system relies on a continuously operating \*\*spectrum\*\* analyzer. Finally, the weak inversion CMOS RF systems are designed to exploit the properties of high-Q inductors to enable low power operation. This paper reviews system architecture and low power circuits for WINS. (8 Refs)

Subfile: B

Copyright 2000, IEE

2/7/6

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6301362 INSPEC Abstract Number: A1999-17-4282-001, B1999-09-4140-001

Title: Micromachined pressure sensor integrated with an imbalanced Mach-Zehnder waveguide on silicon for coherence modulation scheme

Author(s): Porte, H.; Gorel, V.; Goedgebuer, J.-P.

Author Affiliation: Lab. d'Opt. P.M. Duffieux, Univ. de Franche-Comte, Besancon, France

Journal: Proceedings of the SPIE - The International Society for Optical Engineering Conference Title: Proc. SPIE - Int. Soc. Opt. Eng. (USA) vol.3555 p.194-201

Publisher: SPIE-Int. Soc. Opt. Eng,

Publication Date: 1998 Country of Publication: USA

CODEN: PSISDG ISSN: 0277-786X

SICI: 0277-786X(1998)3555L.194:MPSI;1-4

Material Identity Number: C574-1998-196

U.S. Copyright Clearance Center Code: 0277-786X/98/\$10.00

Conference Title: Optical and Fiber Optic Sensor Systems

Conference Sponsor: SPIE: Chinese Opt. Soc.; China Opt. & Optoelectron. Manuf. Assoc

Conference Date: 16-19 Sept. 1998 Conference Location: Beijing, China

Language: English Document Type: Conference Paper (PA); Journal Paper (JP)

Treatment: Theoretical (T); Experimental (X)

Abstract: We investigate theoretically and experimentally the principle of a micromachined pressure sensor integrated on silicon. The optical part of the sensor consists of an imbalanced Mach-Zehnder waveguide interferometer. The waveguide is formed by a silicon nitride layer of high refractive index set between two cladding layers of silicon dioxide of lower refractive index. The sensing part of the device consists in a set of membranes obtained by anisotropic etching of the back face of the substrate under the reference arm. The pressure variations applied to the membrane induce a geometrical deformation of the waveguide arm and modify the optical path difference between the arms. The nonlinear variation of the phase versus the applied pressure is obtained from the spectral analysis of the channeled \*\*spectrum\*\* transmitted by the interferometer. The static optical path-delay introduced between the arms allows the sensor to be introduced in a coherence modulation scheme, which can result in a remote sensor system, involving an active demodulation. (12 Refs)

Subfile: A B

Copyright 1999, IEE

2/7/7

DIALOG(R)File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

5745250 INSPEC Abstract Number: B9712-7230-077, C9712-3240D-001

Title: Low power signal processing architectures for network microsensors

Author(s): Dong, M.J.; Yung, K.G.; Kaiser, W.J.  
Author Affiliation: California Univ., Los Angeles, CA, USA  
Conference Title: Proceedings 1997 International Symposium on Low Power Electronics and Design (IEEE Cat. No.97TH8332) p.173-7  
Publisher: ACM, New York, NY, USA  
Publication Date: 1997 Country of Publication: USA x+335 pp.  
ISBN: 0 89791 903 3 Material Identity Number: XX97-02049  
U.S. Copyright Clearance Center Code: 0 89791 903 3/97/08..\$3.50  
Conference Title: Proceedings of 1997 International Symposium on Low Power Electronics and Design  
Conference Sponsor: ACM SIGDA; IEEE Circuits & Syst. Soc  
Conference Date: 18-20 Aug. 1997 Conference Location: Monterey, CA, USA  
Language: English Document Type: Conference Paper (PA)  
Treatment: Applications (A); Practical (P); Experimental (X)  
Abstract: Low power signal processing systems are required for distributed network microsensor technology. Network microsensors now provide a new monitoring and control capability for civil and military applications in transportation, manufacturing, biomedical technology, environmental management, and safety and security systems. Signal processing methods for event detection have been developed with low power, parallel architectures that optimize performance for unique sensor system requirements. Implementation of parallel datapaths with shared arithmetic elements enables high throughput at low clock rate. This method has been used to implement a microsensor \*\*spectrum\*\* \*\*analyzer\*\* for a 200 sample/s measurement system. This 0.8  $\mu$  CMOS device operates with a 1  $\mu$  A drain current at a 3 V supply bias. (4 Refs)  
Subfile: B C  
Copyright 1997, IEE

2/7/8  
DIALOG(R)File 2:INSPEC  
(c) 2004 Institution of Electrical Engineers. All rts. reserv.  
5476973 INSPEC Abstract Number: A9704-8280T-009, B9702-7230L-018  
Title: Remote sensing of tetrachloroethene with a micro-fibre optical gas sensor based on surface plasmon resonance spectroscopy  
Author(s): Niggemann, M.; Katerkamp, A.; Pellmann, M.; Bolsmann, P.; Reinbold, J.; Cammann, K.  
Author Affiliation: Inst. fur Chemo- und Biosensorik, Munster, Germany  
Journal: Sensors and Actuators B (Chemical) Conference Title: Sens. Actuators B, Chem. (Switzerland) vol.B34, no.1-3 p.328-33  
Publisher: Elsevier,  
Publication Date: Aug. 1996 Country of Publication: Switzerland  
CODEN: SABCEB ISSN: 0925-4005  
SICI: 0925-4005(199608)B34:1/3L.328:RSTW;1-I  
Material Identity Number: N867-96009  
U.S. Copyright Clearance Center Code: 0925-4005/96/\$15.00  
Conference Title: International Solid-State Sensors and Actuators Conference - TRANSDUCERS '95  
Conference Date: 25-29 June 1995 Conference Location: Stockholm, Sweden  
Document Number: S0925-4005(96)01844-8  
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)  
Treatment: Practical (P); Experimental (X)  
Abstract: A miniaturized fibre optical sensor based on surface plasmon resonance spectroscopy is investigated in view of the detection of organic solvent vapours, particularly tetrachloroethene. Surface plasmons are excited on a silver coated multimode fibre by polychromatic light, and the

resonant excitation is detected as a resonant absorption band in the measured output \*\*spectrum\*\*. When the \*\*analyte\*\* is absorbed in a thin gas-sensitive polysiloxane film deposited on the silver layer the polymer film changes its thickness and its refractive index. These changes result in a wavelength shift of the resonant curve depending on the analyte gas concentration. Theoretical considerations about the sensing effect are made and resonance curves were computer-simulated. Based on these simulations the layout of all sensor parameters was optimized. The sensor shows an excellent response to tetrachloroethene with a response time of two seconds and high reproducibility. When using self-assembling monolayers on the silver surface a long-term stability of more than 3 months can be obtained. Very low cross sensitivities of less than 1% to other solvent vapours like acetone and ethanol are obtained, furthermore, the influence of humidity is very low. This miniaturized fibre optical sensor in combination with an easy-to-handle and non-sophisticated measuring and evaluation unit is excellently suitable for the remote sensing of special organic solvent vapours. (10 Refs)

Subfile: A B

Copyright 1997, IEE

?